

claimed invention. Fourth, Applicant proposes amending claims 36, 38-39, 41-43, 45, 47-48, and 50 solely to maintain the correct claim dependency in view of the proposed cancellation of claims 35 and 44, as well as the proposed amendments to claims 37 and 46. As the proposed amendments merely cancel some claims and amend others to present them in better form for appeal, Applicant respectfully requests that the Examiner enter the proposed amendments.

Claims 35-37 and 39-52 were rejected under 35 U.S.C. § 102(e) as being anticipated by Yang (U.S. Patent No. 6,040,603). Claims 35 and 44 have been cancelled, rendering the rejection of these claims moot. The Examiner's rejections of the remaining claims are respectfully traversed.

Yang is directed to controlling a breakover voltage in an electrostatic discharge protection device. Yang describes forming source and drain regions 305, 307, each having a lightly doped drain region, using ion implants. Next, a first electrostatic discharge implant 309 is formed such that the electrostatic discharge implant 309 will wholly encompass the source region 305, the drain region 307, and the lightly doped drain regions. A second electrostatic discharge implant 311, which has an impurity type opposite to that of the source and drain regions 305, 307 and the first electrostatic discharge implant 309, is formed underneath the first electrostatic discharge implant 309. See Yang, col. 2, ll. 44-67 and Figure 3. As disclosed by Yang, the breakover voltage of the electrostatic discharge protection device is determined by a distance (designated "d" in Figure 3 of Yang) between the first electrostatic discharge implant 309 and the second electrostatic discharge implant 311. See Yang, col. 3, ll. 3-7, and Figure 3.

Applicant respectfully submits that the method disclosed in the present invention is not anticipated by Yang for at least the following reasons. Pursuant to the proposed amendments, Applicant describes and claims in independent claims 37, 46, and 51, among other things,

providing a first doped region, forming a first doped well within the first doped region, and forming a first doped plug within the first doped well. The first doped plug is formed a first distance from a first boundary of the first doped well such that a desired breakover voltage will be provided between the first doped plug and the first doped region, *i.e.* the distance between the first doped plug and the first boundary of the first doped well is selected so as to provide the desired breakover voltage. For example, a first n-plug 104 may be positioned a distance "x" from a first edge 122 of a first n-well 106. The breakover voltage is therefore tunable by adjusting the distance "x." See Patent Application, pg. 14, ll. 19-22 and Figure 5.

In comparing the present invention with Yang, the Examiner apparently associates the first doped region claimed by Applicant with the P-Well shown in Figure 3 of Yang, the first and second doped wells claimed by Applicant with the first electrostatic discharge implant 309, the first doped plug claimed by Applicant with the drain region 307, and the second doped plug claimed by Applicant with the source region 309. See Office Action, page 2, item 2. Following this association, Applicant respectfully submits that Yang does not describe or suggest forming the first doped plug such that the breakover voltage is provided by selecting the distance between the first doped plug and a first boundary of the first doped well. That is, Yang does not disclose forming the drain region 307 such that the breakover voltage is controlled by selecting the distance between the drain region 307 and a first boundary of the electrostatic discharge implant 309. In fact, as stated above, Yang teaches that the breakover voltage of the electrostatic discharge protection device is determined by the distance between the first electrostatic discharge implant 309 and the second electrostatic discharge implant 311. Moreover, again following the Examiner's associations, Applicant does not describe or claim a second electrostatic discharge implant 311.

Thus, for at least the aforementioned reasons, Applicant respectfully submits that independent claims 37, 46, and 51, and all claims depending therefrom, are not anticipated by Yang and request that the Examiner's rejections under 35 U.S.C. § 102(e) of independent claims 37, 46, 51, and all claims depending therefrom be withdrawn.

Moreover, it is respectfully submitted that independent claims 37, 46, 51, and all claims depending therefrom are not obvious in view of Yang. As discussed above, Yang does not teach or suggest forming the first doped plug a first distance from a first boundary of the first doped well, so as to provide a selected breakover voltage between the first doped plug and the first doped region. There is also no suggestion or motivation in Yang for modifying the prior art to arrive at Applicant's claimed invention. In fact, Yang teaches away from the present invention. Yang teaches that the electrostatic discharge protection device requires an additional implant, *i.e.* a second electrostatic discharge implant 311. Yang teaches that forming the second electrostatic discharge implant 311 is necessary to adequately control a snap-back voltage. See Yang, col. 1, ll. 62-64. Yang also teaches that the second electrostatic discharge implant 311 is formed such that the breakover voltage is determined by the distance between the first electrostatic discharge implant 309 and the second electrostatic discharge implant 311.

In the Office Action, claim 54 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Yang, as applied to claim 51 above, and further in view of Pilling et al. (U.S. Patent No. 5,838,624). The Examiner's rejections are respectfully traversed.

The Examiner relies on Pilling to teach an anti-fuse network that is susceptible to damage from electrostatic discharge. However, Pilling does not remedy the fundamental deficiencies in Yang, as described above. Thus, for at least the aforementioned reasons, Applicant respectfully

submits that claim 54 is not anticipated by Yang in view of Pilling and request that the Examiner's rejection be withdrawn.

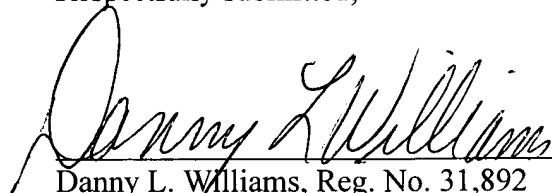
Claims 47 and 53 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Yang as applied to claims 44 and 51 above, and further in view of Matsukawa (U.S. Patent No. 5,182,227). (Because of the similarity in the claims and the nature of the Examiner's argument, Applicant believes that the Examiner also intended to include claim 38 in this rejection.) The Examiner's rejections are respectfully traversed.

The Examiner relies on Matsukawa to teach using a LOCOS oxide to isolate electrical components on a substrate. However, Matsukawa does not remedy the fundamental deficiencies in Yang, as described above. In particular, Matsukawa does not suggest that a LOCOS structure (or an isolation trench structure) can be used as one component of an electrostatic discharge protection device. Thus, there is no suggestion in either Matsukawa or Yang to alter Yang's transistor using a LOCOS structure of Matsukawa to yield the electrostatic discharge protection device formed by the claimed method. Thus, for at least the aforementioned reasons, Applicant respectfully submits that claims 47 and 53 are not anticipated by Yang in view of Matsukawa and request that the Examiner's rejection be withdrawn.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at (713) 934-4060 to discuss the steps necessary for placing the application in condition for allowance.

Respectfully submitted,

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